

09/458,897
Page 9 of 16

REMARKS

This response is intended as a full and complete response to the non-final Office Action mailed January 27, 2005. In the Office Action, the Examiner notes that claims 1 and 3-21 are pending, of which claims 1 and 3-21 stand rejected. By this response, claims 1, 7, and 11 have been amended, and claims 3-6, 8-10, and 12-21 continue unamended.

In view of both the amendments presented above and the following discussion, the Applicant submits that none of the claims now pending in the application are obvious under the provisions of 35 U.S.C. §103. Thus, the Applicant believes that all of these claims are now in allowable form.

It is to be understood that the Applicant, by amending the claims, does not acquiesce to the Examiner's characterizations of the art of record or to Applicant's subject matter recited in the pending claims. Further, Applicant is not acquiescing to the Examiner's statements as to the applicability of the art of record to the pending claims by filing the instant responsive amendments.

Objections

IN THE CLAIMS

The Examiner has objected to claims 7 and 8 stating there is insufficient antecedent basis for the limitation "said at least one non-volatile storage" in line 3 of claim 7. The Applicant respectfully traverses the Examiner's rejection.

The Applicant has amended the limitation "said at least one non-volatile storage" to "at least one non-volatile storage." The Applicant now submits that dependent claim 7 is not indefinite and fully satisfies the requirements of 35 U.S.C. §112 and is patentable thereunder. Furthermore, claim 8 depends from dependent claim 7 and recites additional limitations thereof. As such and at least for the same reasons as discussed above, the Applicant submits that this dependent claim is also not indefinite and fully satisfies the requirements of 35 U.S.C. §112 and is patentable thereunder. Therefore, the Applicant respectfully requests that the rejection be withdrawn.

337886-1

09/458,897
Page 10 of 16

IN THE SPECIFICATION

The Applicant has amended the specification to provide minor grammatical corrections and reference designation changes to conform with the drawings. The Applicant submits that such changes do not add any new subject matter to the application.

Rejections under 35 U.S.C. §103

Claims 1, 3-6 and 11

The Examiner has rejected claims 1, 3-6 and 11 as being unpatentable over Duso et al. (U.S. Patent No. 5,892,915, hereinafter "Duso"), in view of Mann (U.S. Patent No. 5,862,312, hereinafter "Mann") in further view of Craig (U.S. Patent No. 5,790,176, hereinafter "Craig"). Applicant respectfully traverses the rejection.

Applicant's claim 1 recites (independent claim 11 recites similar limitations):

"A method of distributing and sharing processing loads and increasing fault tolerance between provider equipment and subscriber equipment of an interactive information distribution system, comprising the steps of:
receiving, at a head-end, a request for video information from said subscriber equipment;
executing a video session from at least one of a plurality of managing modules on a primary head-end controller at said head-end;
dedicating, at said head-end, at least one secondary head-end controller respectively having said at least one managing module as a resource for executing said video session, wherein said executing said video session comprises concurrently executing session state data of said video session on at least one distributed managing module associated with each of said primary head-end controller and said at least one secondary head-end controller;
storing said session-state data from said executed video session on at least one storage device; and
streaming, from a stream server, said video information to said requesting subscriber equipment during a normal mode of operation."
(emphasis added.)

The test under 35 U.S.C. §103 is not whether an improvement or a use set forth in a patent would have been obvious or non-obvious; rather the test is whether the claimed invention, considered as a whole, would have been obvious. Jones v. Hardy, 110 U.S.P.Q. 1021, 1024 (Fed. Cir. 1984) (emphasis added). To establish prima facie

337886-1

09/458,897
Page 11 of 16

obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d. 1382, 1385, 165 U.S.P.Q. 494 496 (C.C.P.A. 1970), M.P.E.P. 2143.03. Moreover, the invention as a whole is not restricted to the specific subject matter claimed, but also embraces its properties and the problem it solves. *In re Wright*, 6 U.S.P.Q. 2d 1959, 1961 (Fed. Cir. 1988) (emphasis added). The combination of Duso, Mann and Craig fails to teach or suggest the Applicant's invention as a whole.

In particular, Duso discloses "[t]he clustering of the stream servers 21 as a front end to the cached disk array 23 provides parallelism and scalability." (See Duso, column 5, lines 48-39.) "Each of the dual redundant controller servers 28, 29 has an Ethernet connection to the local Ethernet link 26. Each of the controller servers 28, 29 also has a connection to a serial link 31 to a media server display and keyboard 32. The controller servers 28, 29 run a conventional operating system (such as Windows NT or UNIX) to provide a hot-failover redundant configuration." "The active one of the controller servers 28, 29 also allows management and control of the server resources from the network using standard protocols, such as the Simple Network Management Protocol (SNMP)." (See Duso, column 5, lines 48 and 49, column 6, lines 28-40.)

The Mann reference discloses

"... the controllers 24 of the processor systems 12 individually and collectively act to store data across the entire computer system 10 network in a redundant fashion so that if any one processor system 12 fails the remaining processor systems can nevertheless reconstruct all the data available in the entire system." (See Mann, column 6, lines 38-43.)

"The cluster architecture utilizes RAID-5 technology to build a fault tolerant distributed system. The data objects are stored as named fragment files across the members of the cluster. Data objects are striped (in accordance with RAID-5 protocol) and stored with parity information to allow a missing named fragment file to be reconstructed if a cluster member fails." (See Mann, column 8, lines 46-52.)

Furthermore, the Craig reference discloses:

09/458,897

Page 12 of 16

"Session Manger 310 includes Session Supervisor 312 which manages all program sessions including system access by Video-on-Demand subscribers, other multi-media users and input and output to, from and through the Media server by Multi-Media Information Providers. Session Supervisor 312 tracks and records all data pertinent to each session including output port, input port (if receiving data directly from a Multi-Media Information Provider or if the user is a Multi-Media Information Provider), feature being played or multi-media application address, feature index data, feature frame data, and session condition." (See Craig, column 10, lines 46-56.)

Craig further discloses: "Session Supervisor 312 maintains a matrix of routing information for each session, including what users are assigned to a given output port, and the source of the input data." "This data is provided to the Session Registers 316 for tracking frames for each logical subscriber session and is used to restart an interrupted session." (See Craig, column 14, lines 7-15.)

Even if the three references somehow could be operably combined, the combination would disclose an interactive information distribution system having data controllers that provide hot-failover redundancy between provider equipment and subscriber equipment storing video content in a RAID 5 format across a plurality of processor systems of a cluster, a session manager for tracking and recording all data pertinent to each session, and a disk storage control system having dual controllers wherein data in one memory of first disk controller is duplicated in the memory of a second disk controller. Thus, the combined references are completely different from the Applicant's invention, since the combined references fail to teach or suggest that the execution of a video session comprises concurrently executing session-state data of the video session on at least one distributed managing module associated with each said primary head-end controller and at least one secondary head-end controller. That is, the distributed managing module of the Applicant's invention executes the session-state data of the video session, as opposed to merely storing the video content in memory of each head-end controller. In particular, the Applicant's defines session-state data as information that defines the state of the session. It includes who the subscribers are, which set-top boxes are active, what video asset is being watched, the addresses of the set-top boxes, which modulators are being used, which navigation

09/458,897
Page 13 of 16

screen the subscriber is watching and similar such related information (see the Applicant's specification, page 7, lines 20-27).

Moreover,

"Each managing module has a distinct function for managing and processing specific data at different times. For example, a portion of the managing modules are dedicated to processing session-state data, that is generated during the subscriber's requests for video content. Other managing modules manage video asset allocation and storage at either the head-end or some other remote location. Still, others manage the subscriber equipment and billing requirements.

This method of improving the fault-tolerance, that is, by adding redundant hardware at the head-end, has an additional feature that provides for the sharing of the processing loads prior to storing the processed data. Specifically, some of the managing modules have the ability to process data on more than one head-end controller at a time. These managing modules are termed 'distributed,' since each instance of the managing module is processing a subset of the session-state data. Session-state data that is processed by a distributed managing module is concurrently being processed at the primary head-end controller processor 135-1 and processed at the secondary head-end controller processor 135-2." (See Applicant's specification, page 9, line 27 to page 10, line 11.)

The combined references fail to embrace the properties of the Applicant's invention and the problem it solves. The Applicant's invention solves the problem of hardware failure at a head-end, and the impact on subscribers in terms of providing uninterrupted service to such subscribers in the event of a head-end controller failure. The Applicant has identified latency problems due to the loss of session-state data during a head-end controller failure where session-state data includes subscriber related information such as who the subscribers are, set-top box addresses, navigation screen information, modulator information, among other session-state data.

By contrast, the teachings of the combined references are merely concerned with redundancy of hardware and the video context (i.e., movies). Nowhere in the combined references is there any teaching or suggestion to duplicate session-state data that is being executed on both the primary and secondary controllers.

Accordingly, the combination of the Duso, Mann and Craig references fails to teach or suggest the Applicant's invention as a whole, since the combined references fail to teach or suggest the Applicant's claimed feature of "said executing said video

09/458,897
Page 14 of 16

session comprises concurrently executing the session-state data of said video session on at least one distributed managing module associated with each of said primary head-end controller and said at least one second head-end controller." Therefore, the combination of the Duso, Mann and Craig references fails to teach or suggest the Applicant's invention as a whole.

As such, the Applicant submits that independent claims 1 and 11 are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Furthermore, claims 3-6 depend, either directly or indirectly, from independent claim 1 and recite additional limitations thereof. As such, and for at least the same reasons as discussed above, the Applicant submits that these dependent claims are also not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that the rejection of such claim under 35 U.S.C. §103(a) be withdrawn.

Claims 7-10, 12-21

The Examiner has rejected claims 7-10 and 12-21 as being unpatentable over Duso in view of Mann in further view of Craig, in further view of Beal et al. (5,155,845, hereinafter "Beal"). The Applicant respectfully traverses the rejection.

Claims 7-10 and 12-21 are dependent directly or indirectly upon, respectively, independent claims 1 and 11 and recite similar limitations thereof. The teachings of Duso, Mann and Craig are discussed above with respect to claims 1, 3-6 and 11. Furthermore, Beal fails to bridge the substantial gap as between Duso, Mann and Craig and Applicant's invention. In particular, Beal discloses:

"Both hosts 101 and 121 may operate concurrently and independently with each normally communicating only with its primary DSC and connected disk drives. Thus, host 101 may normally communicate primarily with DSC 105 and its disk drives 109 and host 121 may normally communicate primarily with DSC 107 and its disk drives 111. However, on each write operation by either host for volumes specified for extended dual copy service, the data record is written not only on the disk drives of the DSC with which the host normally communicates, but by means of data links 106, the other DSC causes an extended duplicate copy of each such record to be recorded on its disk drives." (See Beal, column 6, lines 51-64.)

09/458,897

Page 15 of 16

Furthermore, even if the four references could somehow be operably combined, the combination would merely disclose an interactive information distribution system having dual redundant controllers for providing hot-failover redundancy between provider equipment and subscriber equipment, storing video content in a RAID 5 format across a plurality of processor systems of a cluster, a session supervisor which tracks and records all data pertinent to each session and maintains routing information for each session, and upon a failure of disk drive and/or disk controller, and/or disk storage controller (DSC), a host may continue normal operation by communicating with another DSC over an interface to operate with standard duplicate records on the disk drive. Thus, the combined references are completely different from the Applicant's invention, since the combined references fail to teach or suggest "executing said video session comprises concurrently executing session-state data of said video session on at least one distributed managing module associated with each of said primary head-end controller and said at least one secondary head-end controller." Therefore, the combination of Duso, Mann, Craig and Beal fails to teach or suggest the Applicant's invention as a whole.

As such, the Applicant submits that claims 7-10 and 12-21 are not obvious and fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder. Therefore, the Applicant respectfully requests that the rejection of such claim under 35 U.S.C. §103(a) be withdrawn.

CONCLUSION

Thus, the Applicant submits that none of the claims presently in the application, are obvious under the provisions of 35 U.S.C. §103. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested

09/458,897
Page 16 of 16

that the Examiner telephone Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

Dated: _____

4/26/05

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337886-1